

## PhD positions at KIT in the research unit “VOLIMPACT”

**VOLIMPACT** is a research unit funded by German science foundation (DFG) to revisit the volcanic impact on atmosphere and climate in preparations for the next big volcanic eruption (FOR 2820). After successful completion of 1<sup>st</sup> phase, seven universities and research institutions are involved in the 2<sup>nd</sup> phase of this project (2022-2025). **VOLIMPACT** has five subprojects with the overall goal to deepen the understanding of how the climate system responds to volcanic eruptions using the recent advancements made in models and measurement techniques. For more info visit <https://physik.uni-greifswald.de/ag-von-savigny/projects/dfg-research-unit-volimpact-for-2820/>

At the **Karlsruhe Institute of Technology (KIT)**, the Institute of Meteorology and Climate Research (IMK) contributes to **VOLPLUME** and **VOLCLOUD** as two subprojects of **VOLIMPACT**. The following two PhD positions are currently open:

**TOPIC 1:** Impacts of ash on the physical and chemical evolution of volcanic plumes

**Subproject:** VOLPLUME

**Working Group:** <https://www.imk-tro.kit.edu/english/3487.php>

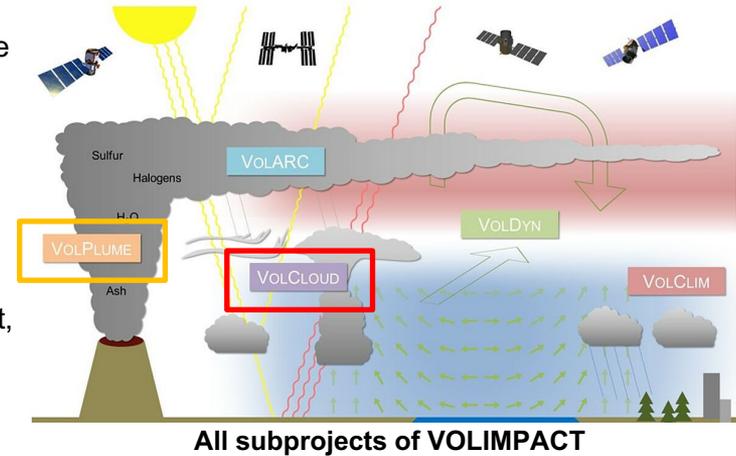
**TOPIC 2:** Response of mixed-phase and ice clouds to volcanic aerosol

**Subproject:** VOLCLOUD

**Working Group:** <https://www.imk-tro.kit.edu/english/5599.php>

## TOPIC 1: Impacts of ash on the physical and chemical evolution of volcanic plumes (VOLPLUME)

Shape, size distribution, and composition of the ash particles play key roles in the atmospheric life-time and impacts of volcanic ash. **VOLPLUME** will build on the advancements made with respect to plume modeling, aerosol dynamics, and aerosol-radiation interactions in phase I and improve the understanding of the volcanic ash role in chemical, microphysical and optical evolution of the eruption plume. The candidate will use and further develop the ICON-ART modeling system by including new parameterizations of volcanic ash properties and processes. VOLPLUME is a joint project of KIT and the University of Hamburg, where satellite observations are studied. The work will include code development, numerical experiments and the presentation of research findings at international conferences and in peer-reviewed journals.



## TOPIC 2: Response of mixed-phase and ice clouds to volcanic aerosol (VOLCLOUD)

Clouds are a key determinant of the Earth energy budget. In order to understand and quantify the impact of volcanic eruptions on climate, it is thus imperative to quantify the effects aerosols emitted to the troposphere have on clouds, as well as the cloud response to circulation changes. A volcanic eruption is an ideal “natural laboratory”, since it generates an aerosol perturbation that is independent of weather conditions. The goal of the project **VOLCLOUD** at KIT is to better understand and quantify the response of ice and mixed-phase clouds by implementing and evaluating new ice nucleation parameterizations for volcanic aerosol, and assessing the role of indirect and semi-direct effects. VOLCLOUD is a joint project of KIT and the University of Leipzig, where liquid clouds are studied. The work will include code development, numerical experiments and the presentation of research findings at international conferences and in peer-reviewed journals.

## Details

- **Conditions:** 36 Months (fixed-term contract), *Salary:* 75% TV-L E13, depending on the fulfillment of professional and personal requirements. Location: KIT, Campus North (Position VOLPLUME) / Campus South (Position VOLCLOUD). *Starting date:* The positions are available from 1<sup>st</sup> September 2022 or as soon as possible thereafter.
- **You bring:**
  - Master's degree in meteorology, atmospheric sciences, physics or a related field.
  - Basic understanding of numerical modelling, scientific programming and HPC.
  - Experience in one of the following topics: atmospheric modelling, cloud/aerosol physics and interactions.
- **We offer:**
  - Dynamic and international work environment with various benefits (<http://www.kit.edu>).
  - Attractive programs for young researchers (<http://www.khys.kit.edu>).
  - KIT actively supports gender equality, diversity and inclusion and is an equal-opportunity employer.
- **How to apply:** Please send your application including a cover letter that outlines your motivation, a CV, copies of relevant diplomas and certificates and contact details of up to three references as a single pdf file until 01.06.2022 to:
  - Dr. Ali Hoshyaripour** ([ali.hoshyaripour@kit.edu](mailto:ali.hoshyaripour@kit.edu)) for VOLPLUME
  - Prof. Dr. Corinna Hoose** ([corinna.hoose@kit.edu](mailto:corinna.hoose@kit.edu)) for VOLCLOUD.Please use these contacts also for questions and inquiries. You can also apply for both projects but should indicate your priority.